

CLAIMS

We claim:

1. A non-naturally occurring salt tolerant plant or plant part from said plant comprising fruit having increased potassium levels when said plant cultivated under elevated salt conditions.
2. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the increased potassium levels are at least 10% higher.
3. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the increased potassium levels are at least 15% higher.
4. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the increased potassium levels are at least 20% higher.
5. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the increased potassium levels are at least 25% higher.
6. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the fruit is a flower developed fruit.
7. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the fruit is an ovary developed fruit.
8. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the plant is transgenic.
9. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the plant is tomato.

10. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the plant is grape.

11. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 1 wherein the plant comprises a transgene.

12. The non-naturally occurring salt tolerant plant or plant part from said plant of claim 11 wherein the transgene comprises a first nucleic acid encoding a Na⁺/H⁺ transporter.

13. The non-naturally occurring non-halophyte plant or plant part from said plant of claim 12 wherein the first nucleic acid is selected from the group consisting of the following:

- (a) a nucleic acid molecule of the coding strand shown in SEQ ID NO:1, or a complement thereof;
- (b) a nucleic acid molecule encoding the amino acid sequence shown in SEQ ID NO:2;
- (c) a nucleic acid molecule that hybridizes to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1 under highly stringent conditions that include at least one wash in 0.1xSSC, 0.1% SDS, at 65° C for thirty minutes; and
- (d) a nucleic acid molecule encoding a plant NHX transporter polypeptide that hybridizes to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1 under moderately stringent conditions that includes at least one wash in 0.1xSSC, 0.1% SDS, at 50° C for thirty minutes.

14. The non-naturally occurring non-halophyte plant or plant part from said plant of claim 13 wherein the transgene further comprises a second nucleic acid operably linked to the first nucleic acid, where in the second nucleic acid comprises a plant promoter.

15. The non-naturally occurring non-halophyte plant or plant part from said plant of claim 14 wherein the promoter is the 35 S promoter.

16. The non-naturally occurring non-halophyte plant or plant part from said plant of claim 14 wherein the plant is tomato.

17. The non-naturally occurring non-halophyte plant or plant part from said plant of claim 1 wherein the plant part is the fruit.

18. A non-naturally occurring non-halophyte seed produced from the plant of claim 1.

19. A transgenic tomato plant comprising a first nucleic acid selected from the group consisting of the following:

(a) a nucleic acid molecule of the coding strand shown in SEQ ID NO:1, or a complement thereof;

(b) a nucleic acid molecule encoding the same amino acid sequence as encoded by the nucleotide sequence of (a);

(c) a nucleic acid molecule that hybridizes to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1 under highly stringent conditions that include at least one wash in 0.1xSSC, 0.1% SDS, at 65° C for thirty minutes; and

(d) a nucleic acid molecule encoding a plant NHX transporter polypeptide that hybridizes to the sequence set forth in SEQ ID NO:1 or the complement of the sequence set forth in SEQ ID NO:1 under moderately stringent conditions that includes at least one wash in 0.1xSSC, 0.1% SDS, at 50° C for thirty minutes.

20. The transgenic tomato plant of claim 19 wherein the transgene further comprises a second nucleic acid operably linked to the first nucleic acid, where in the second nucleic acid comprises a plant promoter.

21. The transgenic tomato plant of claim 20 wherein the promoter is the 35 S promoter.